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Supplementary materials for manuscript

Growth Factors Regional Patterned and Photoimmobilized Scaffold Applied to Bone Tissue Regeneration

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Additional Experimental Section

Methods

Create a new document in Matlab 2014a software and enter the following program in the program window to simulate the UV double-slit interference experiment:

```
lam=250e-9;
d=1e-2;
D=0.1;
ym=5*lam*D/d;
xs=ym;
n=101;
ys=linspace(-ym,ym,n);
for i=1:n
r1=sqrt((ys(i)-d/2).^2+D^2);
r2=sqrt((ys(i)+d/2).^2+D^2);
phi=2*pi*(r2-r1)./lam;
B(i,:)=sum(4*cos(phi/2).^2);
end
N=255;
Br=(B/4.0)*N
subplot(1,2,1)
image(xs,ys,Br);
colormap(gray(N));
subplot(1,2,2)
plot(B,ys);

>>edit_interval=edit_lam*edit_D/(edit_d*10000);
num1=str2num(get(handles.edir_lam,'string'));
num2=str2num(get(handles.edit_D,'string'));
```

```
num3=str2num(get(handles.edit_d,'string'));
num4=num2str(num1*num2/(num3*10000));
set(handles.edit_interval,'string',num4);
```

Enter the following procedure to simulate the ultraviolet diffraction experiment:

```
a=0.001;
b=0.001;
lmda=250e-9;
f=0.79;
xm=0.075;
def=0.001;
I0=1;
[x,y] = meshgrid(-xm:def:xm);
alpha=(pi*a*x)/(f*lmda);
beta=(pi*b*y)/(f*lmda);
I= I0*(sin(alpha).^2.*sin(beta).^2./((alpha.^2+eps).*(beta.^2+eps)));
figure
imshow(I*255)
xlabel('x');
ylabel('y');
figure
mesh(x,y,I)
xlabel('x');
ylabel('y');
zlabel(' light intensity');
```

Output results.

Results

Computer simulation of interference/diffraction.

As shown in Fig. S1, we successfully use 2014 a MatLab software to simulate the phenomena of double-slit to UV light. We enter the experimental conditions for λ = 250 nm, D = 10 cm, d = 1 cm, the result is shown in Fig. S1A and B. When the wavelength of 250 nm UV light into a spacing of 1 cm double slit, projected from the double seam on the screen of her 10 cm, will present center spacing of 25 microns of light and shade and white stripe.

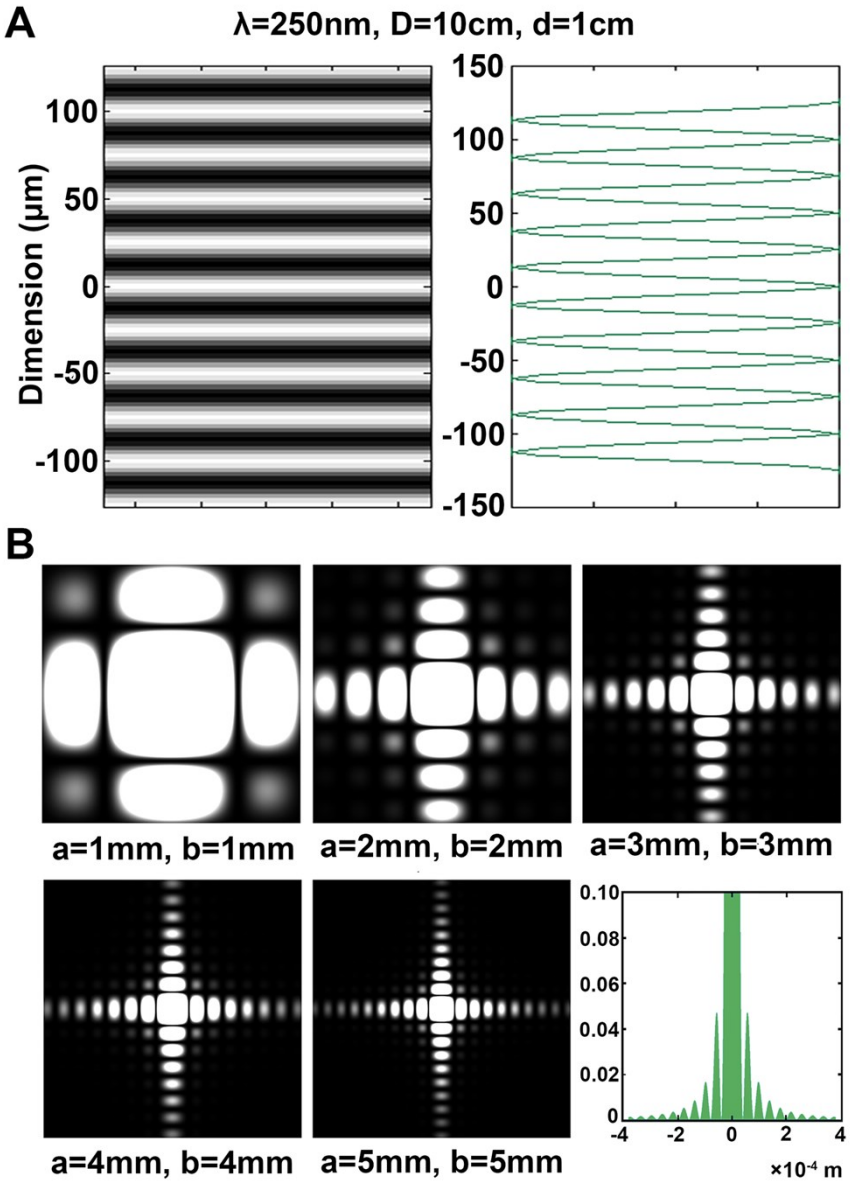

Fig. S1. Computer simulation of optical experiments. A: UV interference B: The UV produce a diffraction pattern when transmitted through grating.

After the computer simulation of the interference/diffraction phenomenon of ultraviolet

light, the conditions of interference were determined as follows: The conditions of the diffraction are: λ = 250 nm, D = 79 cm, a = 5 mm, and b = 5 mm, the result is shown in Fig. S3B. According to the above conditions, a simple optical device is prepared to satisfy the experimental conditions.